IN THE CLAIMS

Claim 1. (Previously Presented) A method of switching frames at a first switch on a communication network, comprising the steps of:

receiving a frame at ~~a~~ the first switch, the frame having an Ethernet Media Access Control (MAC) header including at least one 6 byte MAC address, the 6 byte MAC address including an address portion which is divided into a plurality of sub-fields, at least two of the sub-fields of the address portion being greater than 2 bits in length and shorter than 5 bytes in length and each sub-field having local significance to a separate switch on the communication network such that each separate switch will read only one of the plurality of sub-fields of the MAC address when making a switching decision for the frame;

extracting, by the first switch, frame contained destination information from one of the plurality of sub-fields of the address portion of the MAC address associated with the received frame by reading only one of the sub-fields within the MAC address;

making a switching decision within the first switch based on the extracted frame contained destination information from the one read sub-field without performing a lookup in a forwarding table based on the entire address portion of the MAC address to determine an output port from the first switch over which the frame should be forwarded onto the communication network;

forwarding the frame within the first switch to the output port over which the frame should be forwarded onto the communication network; and

transmitting said frame from the determined output port onto the communication network;

whereby a received frame may be transmitted from an input port to a determined output port and then onto the communication network based on the frame contained destination information contained within the sub-field of the address portion of the MAC address without performing a table lookup operation on the entire address portion of the MAC address to determine the output port.

Claims 2-3. (Cancelled)

Claim 4. (Previously Presented) The method of claim 1, wherein the MAC address is a local destination MAC address.

Claim 5. (Cancelled)

Claim 6. (Previously Presented) The method of claim 1, further comprising the step of reading at least a second field of the MAC address.

Claim 7. (Previously Presented) The method of claim 1, wherein the MAC address includes at least two fields, a first of said fields containing information for the first switch and a second of said fields containing information for a second switch connected to an interface of the first switch.

Claim 8. (Original) The method of claim 7, wherein extracting comprises reading the first and second fields.

Claim 9. (Previously Presented) The method of claim 8, wherein ascertaining comprises comparing, by the first switch, information in the second field with expected information, and selecting as the output port an output port on the first switch that is connected to said second switch if the information in the second field does not match the expected information.

Claims 10-14. (Canceled)

Claim 15. (Currently Amended) A method of assigning a Media Access Control (MAC) address for use in forwarding traffic by network elements ~~to an interface~~ on a network, the MAC address having first through sixth octets, the method comprising the steps of:

setting a local bit in the first octet of the MAC address to indicate to the network elements on the network that the MAC address is locally assigned, the MAC address including an address portion which is divided into a plurality of sub-fields, at least two of the sub-fields of the address portion being greater than 2 bits in length and shorter than 5 bytes in length and each

sub-field having local significance to a separate network element on the network such that each separate network element will read only one of the plurality of sub-fields of the MAC address when making a switching decision for the frame; and

assigning a first value to a first of the at least two sub-fields ~~field spanning a portion of the MAC address other than the first octet of the MAC address and not all of the second through sixth octets of the MAC address, the first field containing a smaller number of bits than a total number of bits contained in the second through sixth octets of the destination MAC address~~, said first value containing first output interface information usable by a first of the network elements to switch packets or frames of data containing the MAC address to the first output interface without reference to the other sub-fields of the ~~information contained in the second through sixth octets outside of the first field to identify a first output interface for transmission of frames containing the first value in the first field of said~~ MAC address; and

assigning a second value to a second of the at least two sub-fields, said second value containing second output interface information usable by a second of the network elements to switch the packets or frames of data containing the MAC address to the second output interface without reference to the other sub-fields of the MAC address.

Claim 16. (Original) The method of claim 15, further comprising collecting the first output interface information from the first switch.

Claim 17. (Canceled)

Claim 18. (Currently Amended) The method of claim 15 ~~claim 17~~, further comprising collecting the second output interface information from the second switch.

Claim 19. (Currently Amended) The method of claim 15, further comprising transmitting the MAC address to the first network element ~~a network device~~ containing said first interface to which the first value of the MAC address has been assigned.

Claim 20. (Original) The method of claim 19, further comprising setting the network device in promiscuous mode to cause the network device to receive said MAC address.

Claim 21. (Currently Amended) The method of claim 15, further comprising a step of assigning a third ~~second~~ field of the MAC address according to a prefix of the first network element ~~switch~~.

Claim 22. (Currently Amended) The method of claim 21, wherein the prefix is a portion of all local MAC addresses that are reachable through the first network element ~~switch~~.

Claim 23. (Canceled)